

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application

Inventors: Charles E. Taylor, Shek Fai Lau

Appl. No.: Unknown

Confirm. No.: Unknown

Filed: Herewith

Title: ELECTRO-KINETIC AIR TRANSPORTER-  
CONDITIONER DEVICE WITH ENHANCED  
CLEANING FEATURES

PATENT APPLICATION

Art Unit: 1741

Examiner: Unknown

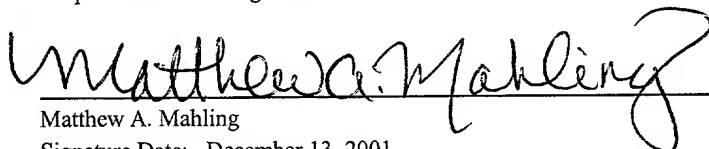
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Matthew A. Mahling  
Signature Date: December 13, 2001

**PRELIMINARY AMENDMENT**

Commissioner for Patents  
Washington, D.C. 20231

Sir:

Prior to examination of the application, please amend the above-identified application as follows.

In the Specification:

On page 1, above the title: Field of the Invention, please add the following Claim of Priority and

Cross-References to Related Patent Applications:

Claim of Priority:

This application claims priority from provisional application entitled "FOCUS ELECTRODE, ELECTRO-KINETIC AIR TRANSPORTER-CONDITIONER DEVICES," Application No. 60/306,479, filed July 18, 2001 under 35 U.S.C. 119(e), which application is incorporated herein by reference. This application is a continuation of U.S. Patent Application No. 09/730,499 filed December 5, 2000, which is a continuation of U.S. Patent Application No. 09/186,471 filed November 5, 1998, now U.S. Patent No. 6,176,977, all of which are incorporated herein by reference.

Cross-Reference to Concurrently Filed Present Applications:

1. U.S. Patent Application No. 60/xxx,xxx, filed herewith, entitled "ELECTRO-KINETIC AIR TRANSPORTER-CONDITIONER DEVICES WITH AN UPSTREAM FOCUS ELECTRODE"; SHPR-01041US6
2. U.S. Patent Application No. 60/xxx,xxx, filed herewith, entitled "ELECTRO-KINETIC AIR TRANSPORTER-CONDITIONER DEVICES WITH TRAILING ELECTRODE"; SHPR-01041USE
3. U.S. Patent Application No. 60/xxx,xxx, filed herewith, entitled "ELECTRO-KINETIC AIR TRANSPORTER-CONDITIONER DEVICES WITH INTERSTITIAL ELECTRODE"; SHPR-01041USF
4. U.S. Patent Application No. 60/xxx,xxx, filed herewith, entitled "ELECTRO-KINETIC AIR TRANSPORTER-CONDITIONER DEVICES WITH ENHANCED COLLECTOR ELECTRODE"; SHPR-01041USG

5. U.S. Patent Application No. 60/xxx,xxx, filed herewith, entitled "ELECTRO-KINETIC AIR TRANSPORTER-CONDITIONER DEVICES WITH ENHANCED EMITTER ELECTRODE"; SHPR-01041USH

6. U.S. Patent Application No. 60/xxx,xxx, filed herewith, entitled "ELECTRO-KINETIC AIR TRANSPORTER AND CONDITIONER DEVICE WITH ENHANCED ANTI-MICROORGANISM CAPABILITY"; SHPR-01028US1

7. U.S. Patent Application No. 60/xxx,xxx, filed herewith, entitled "ELECTRO-KINETIC AIR TRANSPORTER AND CONDITIONER DEVICE WITH ENHANCED HOUSING CONFIGURATION AND ENHANCED ANTI-MICROORGANISM CAPABILITY"; SHPR-01028US2

8. U.S. Patent Application No. 60/xxx,xxx, filed herewith, entitled "ELECTRO-KINETIC AIR TRANSPORTER AND CONDITIONER DEVICE WITH ENHANCED MAINTENANCE FEATURES AND ENHANCED ANTI-MICROORGANISM CAPABILITY"; SHPR-01028US3

9. U.S. Patent Application No. 60/xxx,xxx, filed herewith, entitled "ELECTRO-KINETIC AIR TRANSPORTER-CONDITIONER WITH NON-EQUIDISTANT COLLECTOR ELECTRODES"; SHPR-01041US8

10. U.S. Patent Application No. 60/xxx,xxx, filed herewith, entitled "DUAL INPUT AND OUTLET ELECTROSTATIC AIR TRANSPORTER-CONDITIONER"; SHPR-01041US7 and

11. U.S. Patent Application No. 60/xxx,xxx, filed herewith, entitled "ELECTRO-KINETIC AIR TRANSPORTER-CONDITIONER DEVICES WITH A ENHANCED COLLECTOR ELECTRODE FOR COLLECTION OF MORE PARTICULATE MATTER". SHPR-01041US9

All of the above references are incorporated herein by reference.

In the Claims:

Please cancel claims 1-24. Please add new claims 25-118. All pending claims are reproduced below, including those that remain unchanged.

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Parameter	Unit	Value
Temperature	°C	25.0
Pressure	atm	1.0
Flow rate	L/min	1.0
Sample concentration	mg/mL	1.0
Sample volume	μL	1.0
Sample weight	mg	1.0
Sample height	cm	1.0
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Sample depth	cm	1.0
Sample area	cm <sup>2</sup>	1.0
Sample volume	cm <sup>3</sup>	1.0
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Sample depth	μm	1.0
Sample area	μm <sup>2</sup>	1.0
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Sample width	nm	1.0
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25. An electro-kinetic air transporter-conditioner system comprising:

an upstanding, elongated housing having a back air inlet vent, right and left side outlet vents

and a front outlet vent; and

an ion generating unit positioned in said housing, said ion generating unit causing air to flow

from the back air inlet vent to the right and left side outlet vents and to the front outlet vent.

26. The system of claim 25 wherein said ion generating unit includes a first ion emitter electrode

and a second particle collector electrode.

27. The system of claim 25 wherein said ion generating unit includes a first ion emitter electrode

that is located adjacent to the back air inlet vent and a second particle collector electrode that is located

adjacent the right and left side outlet vents and the front outlet vent.

28. The system of claim 25 wherein said housing has elongated recesses.

29. The system of claim 25 wherein said ion generating unit includes a first ion emitter electrode and a second collector electrode array, wherein said second collector electrode array has a plurality of elongated fins extending along the elongated housing.

30. The system of claim 25 wherein said ion generating unit includes a first ion emitter electrode and a second particle collector electrode and wherein said second particle collector electrode is hollow.

31. The system of claim 25 wherein said ion generating unit includes a first ion emitter electrode and a second particle collector electrode and wherein said second particle collector electrode is a hollow U-shaped electrode.

32. The system of claim 25 wherein said ion generating unit includes a high voltage pulse generator.

33. The system of claim 25 wherein said ion generating unit includes a first wire electrode and a hollow U-shaped electrode.

34. An electro-kinetic air transporter-conditioner system comprising:  
an upstanding, elongated housing having an air inlet vent, and an air outlet vent; and

an ion generating unit positioned in said housing, said ion generating unit causing air to flow from the air inlet vent to the outlet vent; and

wherein said ion generating unit includes a first ion emitter electrode and a second particle collector electrode and wherein said second particle collector electrode is a hollow electrodes.

35. The system of claim 34 wherein said electrodes are U-shaped.

36. The system of claim 34 wherein said first electrode is a wire.

37. The system of claim 34 wherein said first electrode is a wire and said second electrode is U-shaped.

38. The system of claim 34 wherein said second collector electrode includes a plurality of elongated fins extending along the elongated housing.

39. The system of claim 34 wherein said ion generating unit includes a high voltage pulse generator.

40. An electro-kinetic air transporter-conditioner system comprising:

an upstanding, elongated housing having an air inlet vent, and an air outlet vent; and



an ion generating unit positioned in said housing, said ion generating unit causing air to flow from the air inlet vent to the outlet vent; and

wherein said ion generating unit includes a first ion emitter electrode and wherein said first ion emitter electrode is wire shaped, and a second particle collector electrode and wherein said second particle collector electrode is a hollow U-shaped electrode;

wherein said first wire shaped ion emitter electrode is located adjacent to the air inlet vent and the second particle collector electrode is located adjacent to the air outlet vent.

41. The system of claim 25 wherein said air inlet vent is covered with horizontal louvers and said front air outlet vent is covered with horizontal louvers.

42. The system of claim 34 wherein said air inlet vent is covered with horizontal louvers and said air outlet vent is covered with horizontal louvers.

43. The system of claim 40 wherein said air inlet vent is covered with horizontal louvers and said air outlet vent is covered with horizontal louvers.

44. The system of claim 40 wherein said second collector electrode has a plurality of elongated fins extending along the elongated housing.

45. The system of claim 34 wherein said second collector electrode includes a plurality of hollow electrodes.

46. The system of claim 34 wherein said second collector electrode includes a plurality of hollow U-shaped electrodes.

47. The system of claim 40 wherein said second collector electrode includes a plurality of hollow U-shaped electrodes.

48. The system of claim 25 wherein said ion generating unit includes a first electrode and a second removable electrode, and said housing has a top and wherein said second removable electrode is removable from said housing through said top.

49. The system of claim 25 including a user control, and wherein said housing has a top portion and said user control is located on said top.

50. The system of claim 48 including a user control located on said top.

51. The system of claim 34 wherein said second particle collector electrode is removable, and said housing has a top and wherein said second particle collector electrode is removable from said housing through said top.

52. The system of claim 34 including a user control, and wherein said housing has a top portion and said user control is located on said top.

53. The system of claim 51 including a user control located on said top.

54. The system of claim 40 wherein said second particle collector electrode is removable, and said housing has a top and wherein said second particle collector electrode is removable from said housing through said top.

55. The system of claim 40 including a user control, and wherein said housing has a top portion and said user control is located on said top.

56. The system of claim 55 including a user control located on said top.

57. The system of claim 25 wherein said ion generating unit includes a pin-ring electrode pair.

58. The system of claim 25 wherein said ion generating unit includes a plurality of pin-ring electrode pairs located one above the other along said upstanding, elongated housing.

59. An electro-kinetic air transporter-conditioner system comprising:  
an upstanding, elongated housing having a top; and

an ion generating unit positioned in said housing, said ion generating unit having a first electrode and a second removable electrode, wherein said second removable electrode is removable through said top of said housing.

60. The system of claim 35 including a user control located on said top of said housing.

61. The system of claim 35 including an air inlet vent and an air outlet vent, with the first electrode located adjacent the air inlet vent and the second removable electrode located adjacent the air outlet vent.

62. The system of 35 wherein a user-liftable handle is attached to the second removable electrode and said use-liftable handle extends from the top of said housing.

63. The system of claim 35 wherein said second removable electrode is elongated along a direction of said elongated housing.

64. The system of claim 35 wherein said second removable electrode is elongated and about the same length as said elongated housing.

65. The system of claim 35 wherein said second removable electrode is at least partially removable from the top of said housing for cleaning.

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66. An electro-kinetic air transporter-conditioner system comprising:  
  
an upstanding, elongated housing; and  
  
an ion generating unit positioned in said housing, said ion generating unit having a first electrode and a second removable electrode, wherein said second removable electrode is removable from said housing for cleaning.

67. The system of claim 42 including a user control located adjacent to where said second removable electrode is removable from said housing.

68. The system of claim 42 including an air inlet vent and an air outlet vent, with the first electrode located adjacent the air inlet vent and the second removable electrode located adjacent the air outlet vent.

69. The system of 42 wherein a user handle is attached to the second removable electrode and said use handle is for removing said second removable electrode from said housing.

70. The system of claim 42 wherein said second removable electrode is elongated along a direction of said elongated housing.

71. The system of claim 42 wherein said second removable electrode is elongated and about the same length as said elongated housing.

72. The system of claim 42 wherein said second removable electrode is at least partially removable from said housing for cleaning.

73. The system of claim 25 wherein said inlet vent and said outlet vents are elongated along a length of said elongated housing.

74. The system of claim 34 wherein said inlet vent and said outlet vents are elongated along a length of said elongated housing.

75. The system of claim 40 wherein said inlet vent and said outlet vents are elongated along a length of said elongated housing.

76. The system of claim 35 wherein said housing includes an air inlet vent and an air outlet vent and wherein said inlet vent and said outlet vents are elongated along a length of said elongated housing.

77. The system of claim 42 wherein said housing includes an air inlet vent and an air outlet vent and wherein said inlet vent and said outlet vents are elongated along a length of said elongated housing.

78. The system of claim 25 wherein said air inlet vent and said air outlet vents have horizontal louvers.

79. The system of claim 34 wherein said air inlet vent and said air outlet vent have horizontal louvers.

80. The system of claim 40 wherein said air inlet vent and said air outlet vent have horizontal louvers.

81. The system of claim 59 wherein said housing includes an air inlet vent and an air outlet vent, and said air inlet vent and said air outlet vent have horizontal louvers.

82. The system of claim 66 wherein said housing includes an air inlet vent and an air outlet vent, and said air inlet vent and said air outlet vent have horizontal louvers.

83. The system of claim 25 wherein said housing has a cross-section in the shape of a figure eight.

84. The system of claim 34 wherein said housing has a cross-section in the shape of a figure eight.

85. The system of claim 40 wherein said housing has a cross-section in the shape of a figure eight.

86. The system of claim 59 wherein said housing has a cross-section in the shape of a figure eight.

87. The system of claim 66 wherein said housing has a cross-section in the shape of a figure eight.

88. An electro-kinetic air transporter-conditioner system comprising:  
an upstanding, elongated housing with a top and an air inlet vent and an air outlet vent;  
said air inlet vent is elongate along a direction of elongation of said housing;  
said air outlet vent is elongate along the direction of elongation of said housing;  
an ion generating unit positioned in said housing, said ion generating unit having a first emitter electrode and a second removable collector electrode;  
said second removable collector electrode is elongate along the direction of elongation of said housing and is removable through the top of said housing;  
a user-liftable handle secured to the electrodes and located on the top of said housing, said user-liftable handle can lift said second removable collector electrode from said housing; and  
a user operated control located on the top of said housing.

89. The system of claim 88 wherein said air inlet vent has a plurality of louvers that are directed across the direction of elongation of said housing; and



said air outlet vent has a plurality of louvers that are directed across the direction of elongation of said housing.

90. The system of claim 88 wherein said second removable collector electrode is hollow.

91. The system of claim 88 wherein said second removable collector electrode is U-shaped.

92. The system of claim 88 wherein said second removable collector electrode is located adjacent to the air outlet vent.

93. The system of claim 88 including a trailing electrode located between said second removable collector electrode and said air outlet vent.

94. The system of claim 88 wherein said housing has a cross-section that is substantially a figure eight.

95. The system of claim 25 including a user control that can do at least one of (1) cause the system to be energized, (2) control a duty cycle of the ion generating unit, (3) control a pulse mode operation.

96. The system of claim 25 including user controls that can (1) cause the system to be energized, (2) control a duty cycle of the ion generating unit, (3) control a pulse mode operation.

97. The system of claim 95 wherein the pulse mode control can initiate a burst of output ozone.

98. The system of claim 96 wherein the pulse mode control can initiate a burst of output ozone.

99. The system of claim 34 including a user control that can do at least one of (1) cause the system to be energized, (2) control a duty cycle of the ion generating unit, (3) control a pulse mode operation.

100. The system of claim 34 including user controls that can (1) cause the system to be energized, (2) control a duty cycle of the ion generating unit, (3) control a pulse mode operation.

101. The system of claim 99 wherein the pulse mode control can initiate a burst of output ozone.

102. The system of claim 100 wherein the pulse mode control can initiate a burst of output ozone.

103. The system of claim 40 including a user control that can do at least one of (1) cause the system to be energized, (2) control a duty cycle of the ion generating unit, (3) control a pulse mode operation.

104. The system of claim 40 including user controls that can (1) cause the system to be energized, (2) control a duty cycle of the ion generating unit, (3) control a pulse mode operation.

105. The system of claim 103 wherein the pulse mode control can initiate a burst of output ozone.

106. The system of claim 104 wherein the pulse mode control can initiate a burst of output ozone.

107. The system of claim 60 including said user control that can do at least one of (1) cause the system to be energized, (2) control a duty cycle of the ion generating unit, (3) control a pulse mode operation.

108. The system of claim 60 including said user control that can (1) cause the system to be energized, (2) control a duty cycle of the ion generating unit, (3) control a pulse mode operation.

109. The system of claim 107 wherein the pulse mode control can initiate a burst of output ozone.

110. The system of claim 108 wherein the pulse mode control can initiate a burst of output ozone.

111. The system of claim 66 including a user control that can do at least one of (1) cause the system to be energized, (2) control a duty cycle of the ion generating unit, (3) control a pulse mode operation.

112. The system of claim 66 including user controls that can (1) cause the system to be energized, (2) control a duty cycle of the ion generating unit, (3) control a pulse mode operation.

113. The system of claim 111 wherein the pulse mode control can initiate a burst of output ozone.

114. The system of claim 112 wherein the pulse mode control can initiate a burst of output ozone.

115. The system of claim 88 including said user control that can do at least one of (1) cause the system to be energized, (2) control a duty cycle of the ion generating unit, (3) control a pulse mode operation.

116. The system of claim 88 including said user control that can (1) cause the system to be energized, (2) control a duty cycle of the ion generating unit, (3) control a pulse mode operation.

117. The system of claim 115 wherein the pulse mode control can initiate a burst of output ozone.

118. The system of claim 116 wherein the pulse mode control can initiate a burst of output ozone.

**REMARKS**

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Continued examination and allowance is requested.

Respectfully submitted,

Date: December 13, 2001

By: 

Sheldon R. Meyer  
Reg. No. 27,660

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